

The opinion in support of the decision being entered today was *not* written for publication and is *not* binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ASSAF GOVARI

Appeal 2006-1324
Application 09/882,127
Technology Center 3700

Decided: March 14, 2007

Before WILLIAM F. PATE III, JENNIFER D. BAHR, and
ROBERT E. NAPPI, *Administrative Patent Judges*.

WILLIAM F. PATE III, *Administrative Patent Judge*.

DECISION ON APPEAL
STATEMENT OF THE CASE

This is an appeal from the final rejection of claims 1, 2, 4, 6-23, 25 and 27-43. These are the only claims in the application.

The claimed invention is directed to a medical device which has a body and a position sensor placed on the body. The position sensor is made of Wiegand effect material. Such a material produces a magnetic field that

suddenly switches polarity. This polarity switch is sometimes referred to as the Barkhausen effect or Barkhausen jump. When a Wiegand effect device is placed in a coil and switches polarity it causes a substantially uniform voltage pulse. Thus, if a sensor is placed on a medical device, the position of the medical device may be determined during a medical procedure.

Claim 21, reproduced below, is further illustrative of the claimed subject matter.

21. A medical device and position sensor combination comprising:

- (a) a medical device having a body;
- (b) a position sensor attached to a portion of the body, the position sensor having a core made of a high permeable material, the material being a magnetic material that produces a magnetic field that switches polarity and causes a substantially uniform voltage pulse upon an application of an external field, the position sensor being used for determining position coordinates of the portion of the body of the medical device, the position sensor maintaining accuracy at ≤ 1 mm at temperatures greater than 75°C.

The references of record relied upon by the examiner as evidence of obviousness are:

| | | |
|---------------|-----------|---------------|
| Wiegand | 4,247,601 | Jan. 27, 1981 |
| Yeoman | 4,437,963 | Mar. 20, 1984 |
| Hinke | 4,538,082 | Aug. 27, 1985 |
| Normann | 4,639,670 | Jan. 27, 1987 |
| von der Heide | 5,280,222 | Jan. 18, 1994 |
| Chiriac | 6,270,591 | Aug. 07, 2001 |

(effectively filed Jun. 25, 1998)

Honkura

EP 0 348 557

Jan. 03, 1990

Claims 1-2, 4, 7-11, 21-23, 25, and 28-32 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Appellant's admission of the prior art in view of von der Heide, Hinke or Normann.

Claims 6, 12-18, 20, 27, 33-39 and 41 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Appellant's admission of the prior art in view of von der Heide, Hinke or Normann and further in view of Wiegand.

Claims 19 and 40 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Appellant's admission of the prior art in view of von der Heide, Hinke or Normann and further in view of Yeoman.

Claims 21, 25, 28-32, 41 and 42 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Appellant's admission of the prior art in view of Honkura.

Claims 21, 25, 28-32, and 41-43 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Appellant's admission of the prior art in view of Chiriac.

ISSUES

Accordingly, the sole issue for consideration on appeal is whether the examiner has, by a preponderance of the evidence, established the obviousness of the claimed subject matter.

FINDINGS OF FACT

The patent to von der Heide is directed to an apparatus and method for controlling brushless electric motors, and specifically for encoding the position of the motor rotor. Von der Heide uses internal means for

determining rotor position, but the inventors also discuss external position sensors for determining rotor position. One class of position sensors mentioned are magneto-electronic position sensors, and a list of such position sensors is given. We note that the list contains both Hall effect sensors and Wiegand effect sensors. Otherwise, Wiegand effect sensors are not mentioned in the patent.

Hinke discloses an invention that increases the output amplitude obtained from a Wiegand wire transducer. A Wiegand wire (1) is surrounded by a pick-up coil (2). Surrounding the pick-up coil but insulated therefrom by insulator (10) is a ferrite or soft core iron element (3). Use of the ferrite element (3) increases the transducer output substantially so that the output pulses can be distinguished from background noise.

Normann includes a good description of the magnetic and electric properties of Wiegand wires. The invention in Normann is directed to ganging Wiegand wires in parallel for a larger magnetic pulse. In the figure, Wiegand wires 1, 2, 3 are surrounded by coils 4, 5, 6 and their output is in parallel to trigger an optical circuit.

The Wiegand patent is another disclosure of the magnetic switching device which has come to be known as a Wiegand effect or Wiegand wire. The patent discloses that a preferred material for manufacturing a Wiegand wire is an alloy of iron, cobalt and vanadium.

Yeoman discloses a problematic device said to be able to generate hydrogen from the electrolysis of water. Yeoman discloses that the common material for the coil winding around the Wiegand wire is copper.

Chiriac discloses certain nanocrystalline glass covered wires which exhibit the magnetic pulse or Barkhausen jump with which Wiegand wires are associated. As disclosed and claimed, wires made from this material would be comprised of copper, nickel and iron.

Finally, Honkura discloses a soft magnetic stainless steel. While Honkural states that the steel could be used in a magnetic sensor, Honkura does not mention the Barkhausen effect or the magnetic pulse or Wiegand wires.

PRINCIPAL OF LAW

“A claimed invention is unpatentable if the differences between it and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the pertinent art.” *In re Kahn*, 441 F.3d 977, 985, 78 USPQ2d 1329, 1334-35 (Fed. Cir. 2006) citing 35 U.S.C. § 103(a) (2000); *Graham v. John Deere Co.*, 383 U.S. 1, 13-14, 148 USPQ 459, 467 (1966). “The ultimate determination of whether an invention would have been obvious is a legal conclusion based on underlying findings of fact.” *Id.* (citing *In re Dembiczak*, 175 F.3d 994, 998, 50 USPQ2d 1614, 1616 (Fed. Cir. 1999)).

“In assessing whether subject matter would have been non-obvious under § 103, the Board follows the guidance of the Supreme Court in *Graham v. John Deere Co.* 383 U.S. at 17, 148 USPQ at 467. The Board determines ‘the scope and content of the prior art,’ ascertains ‘the differences between the prior art and the claims at issue,’ and resolves ‘the level of ordinary skill in the pertinent art.’” *Id.* (citing *Dann v. Johnston*, 425 U.S. 219, 226, 189 USPQ 257, 261 (1976)) (quoting *Graham*, 383 U.S. at

17, 148 USPQ at 467). “Against this background, the Board determines whether the subject matter would have been obvious to a person of ordinary skill in the art at the time of the asserted invention.” *Id.* (citing *Graham*, 383 U.S. at 17, 148 USPQ 467).

When the examiner does not include a teaching, suggestion, or motivation in the examiner’s statement of the rejection, we infer that the examiner has used hindsight to conclude the invention was obvious. *See Kahn*, 441 F.3d at 986, 78 USPQ2d at 1335.

ANALYSIS

Based on our factual findings outlined above, we do not find any teaching, suggestion or motivation for the Examiner’s combination of references. We find that the references comprise a parts list with a generalized teaching about Wiegand wires. In the context of electric motors, von der Heide mentions that Hall effect transducers and Wiegand wire transducers may be used to determine rotor position. Hinke discloses that a Wiegand effect transducer could be used in a distributor in an automobile. Normann is concerned with greater output of the Wiegand transducer to go to an optical circuit. Yeoman shows a Wiegand wire as a generator of electricity.

While von der Heide mentions Hall effect and Wiegand effect transducers together, and Hinke discloses Wiegand effect transducers in ignition circuitry where Hall effect transducers are common, these are both industrial applications that are far afield of the diagnostic milieu of the admitted prior art. None of the references provides information that the Wiegand effect transducer would be either safe or effective when used in

and around a patient's body. None of the references provides a teaching that such a sensor would maintain accuracy at elevated temperatures as claimed. Thus, none of the references provides any motivation for using a Wiegand wire as a transducer in place of the Hall effect transducer in Appellant's admitted prior art. The other references are concerned with materials for the Wiegand wire itself and cannot provide any teaching, suggestion or motivation for the substitution of a Wiegand wire into Appellant's admitted prior art.

Following the jurisprudence, when we find no teaching, suggestion or motivation in the Examiner's rejections, we must infer that the Examiner's combination of references is based on impermissible hindsight. That is the case here.

CONCLUSION OF LAW

The examiner has failed to establish, by a preponderance of the evidence, the obviousness of claims 1, 2, 4, 6-23, 25 and 27-43.

ORDER

The rejections of the claims on appeal are reversed.

REVERSED

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